

Claims:

1. A seal cup comprising: a base, an elongate substantially tubular interval extending from the base and ending at a lip, an outer surface extending from the lip to the base, and at least one circumferential seal land on the outer surface adjacent the lip of the tubular interval; at least a portion of the outer surface being capable, under operational pressure for which the seal cup is to be used, of conducting seepage fluid from adjacent the seal land toward the base to act against pressure invasion about the outer surface.
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2. The seal cup of claim 1 wherein the elongate substantially tubular interval has a thickness increasing from the lip to the base.
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3. The seal cup of claim 1 wherein the seal cup has an outer diameter along the tubular interval which tapers from the seal land towards the base.
4. The seal cup of claim 1 wherein the seal cup has an outer diameter along the
15 tubular interval and the base, which tapers from the seal land to the base and the diameter at the base is substantially equal to the inner diameter against which the seal cup is to seal.
5. The seal cup of claim 1 wherein the outer of surface of the seal cup includes a circumferential drainage groove adjacent the seal land and an axial drainage
20 groove extending from the drainage groove to the base.
6. The seal cup of claim 1 including a radiused portion between the lip and the seal land.
7. The seal cup of claim 1 including a wear resistant insert in the outer surface adjacent the seal land.
- 25 8. A seal cup for mounting on a wellbore tool to seal the annulus about the tool when used in a wellbore, the seal cup comprising: a base including a portion mountable to the tool, an elongate substantially tubular interval extending from the base and ending at a lip, an outer surface extending from the lip to the base, and at least one circumferential seal land on the outer surface adjacent the lip of the tubular interval, the seal land including a diameter selected to allow sealing in the annulus about the tool in the wellbore in which
30 the seal cup and tool are to be used; at least a portion of the outer surface

being capable, under wellbore pressure, of conducting seepage fluid from adjacent the seal land toward the base to act against pressure invasion about the outer surface.

9. The seal cup of claim 8 wherein the elongate substantially tubular interval has
5 a thickness increasing from the lip to the base.
10. The seal cup of claim 8 wherein the seal cup has an outer diameter along the tubular interval which tapers from the seal land towards the base.
11. The seal cup of claim 8 wherein the seal cup has an outer diameter along the tubular interval and the base, which tapers from the seal land to the base and
10 the diameter at the base is substantially equal to the inner diameter against which the seal cup is to seal.
12. The seal cup of claim 8 wherein the outer of surface of the seal cup includes a circumferential drainage groove adjacent the seal land and an axial drainage groove extending from the drainage groove to the base.
15. The seal cup of claim 8 including a radiused portion between the lip and the seal land.
14. The seal cup of claim 8 including a wear resistant insert in the outer surface adjacent the seal land.
15. A method for enhancing resistance to axial sliding of a seal cup in a tubular member under application of operational differential pressure, the method comprising: providing a seal cup including a base, a cup skirt extending from the base and a skirt lip; forming the cup skirt such that a sealing barrier can form adjacent the skirt lip; selecting the cup skirt to expand radially under the operational differential pressure to create an interfacial region of contact of the cup skirt against the tubular member between the sealing barrier and the base;
20 selecting the cup skirt to provide for drainage of fluid from the interfacial region of contact away from the sealing barrier, which fluid seeps past the sealing barrier under the operational differential pressure.
25. The method of claim 15 wherein the cup skirt in the region of contact is selected to include materials enhancing the frictional coefficient between the cup skirt and the tubular member.
30. The method of claim 15 wherein the cup skirt in the region of contact is selected to include materials enhancing the frictional coefficient between the cup skirt and the tubular member.

17. The method of claim 15 wherein the region of contact is selected to have a frictional coefficient sufficient to resist axial sliding under operational differential pressure.
18. The method of claim 15 wherein the step of providing the cup skirt to provide for drainage of fluid includes forming passages for evacuation of fluid away from the seal barrier.
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